WHAT IS CLAIMED IS:

1. A liquid crystal Fabry-Perot etalon comprising:

a first substrate coated on a first side with a first transparent conductor layer;

a first reflector layer disposed over the first transparent conductor layer on the first side of the first substrate;

an alignment layer disposed over the first transparent conductor layer on the first side of the first substrate;

a spacer plate coated on a first side with a second transparent conductor layer, the first side of the spacer plate facing the first side of the first substrate, the spacer plate having a second side opposite its first side;

plural spacers disposed between the first substrate and the spacer plate to define a predetermined gap between the first substrate and the spacer plate;

liquid crystal filled in between the first substrate and the spacer plate; and

a second substrate coated on a first side with a second reflector layer, the first side of the second substrate facing the second side of the spacer plate.

2. The liquid crystal Fabry-Perot etalon according to claim **1**, wherein the second substrate is spaced a predetermined distance apart from the spacer plate.

3. The liquid crystal Fabry-Perot etalon according to claim **1**, wherein the second substrate is disposed directly against the spacer plate.

4. A liquid crystal Fabry-Perot etalon comprising:

a first substrate coated on a first side with a first transparent conductor layer;

a first reflector layer disposed over the first transparent conductor layer on the first side of the first substrate;

an alignment layer disposed over the first transparent conductor layer on the first side of the first substrate;

a second transparent conductor layer;

liquid crystal filled in between the alignment layer and the second transparent conductor layer; and

a second substrate coated on a first side with a second reflector layer, the first side of the second substrate facing the first side of the first substrate;

wherein the first transparent conductor layer and the second transparent conductor layer are each etched so as to form multiple independent etalons.

5. The liquid crystal Fabry-Perot etalon of claim **4**, wherein the first and second transparent conductor layers are etched according to a grid pattern.

6. The liquid crystal Fabry-Perot etalon of claim **4**, wherein the first and second transparent conductor layers are etched according to a wedge pattern.

7. The liquid crystal Fabry-Perot etalon of claim **4**, wherein the first and second transparent conductor layers are etched using a laser.

8. The liquid crystal Fabry-Perot etalon of claim **7**, wherein the first and second transparent conductor layers are etched using an Nd:YAG laser.

9. The liquid crystal Fabry-Perot etalon of claim **4**, wherein each of the multiple independent etalons is independently tunable to different wavelengths.

10. The liquid crystal Fabry-Perot etalon of claim **4**, wherein each of the multiple independent etalons comprises as an independently tunable filter.

11. The liquid crystal Fabry-Perot etalon of claim **4**, wherein the second transparent conductor layer is coated on the second substrate.

12. The liquid crystal Fabry-Perot etalon of claim **4**, further comprising:

a spacer plate disposed between the first substrate and the second substrate, wherein the second transparent conductor layer is coated on the spacer plate.

13. A liquid crystal Fabry-Perot etalon comprising:

a first substrate formed of glass;

a spacer plate formed of glass;

liquid crystal disposed between the first substrate and the spacer plate;

a second substrate formed of glass, spaced apart from the spacer plate by an air gap;

a phase matched glass-liquid crystal interface reflective coating disposed on a first side of the first substrate, the first side of the first substrate facing the liquid crystal;

a first phase matched glass-air interface anti-reflective coating disposed on a second side of the first substrate opposite its first side;

a phase matched glass- liquid crystal interface anti-reflective coating disposed on a first side of the spacer plate, the first side of the spacer plate facing the liquid crystal;

a second phase matched glass-air interface anti-reflective coating disposed on a second side of the spacer plate opposite its first side;

a phase matched glass-air interface reflective coating disposed on a first side of the second substrate, the first side of the second substrate facing a second side of the spacer plate; and

a third phase matched glass-air interface anti-reflective coating disposed on a second side of the second substrate opposite its first side.

14. The liquid crystal Fabry-Perot etalon of claim **13**, wherein the phase matched glass-to-liquid crystal reflective coating comprises:

a reflector layer disposed on the first side of the first substrate;

a tin-indium oxide transparent conductor layer disposed over the reflector layer; and

an alignment layer disposed over the tin-indium oxide transparent conductor layer.

15. The liquid crystal Fabry-Perot etalon of claim **13**, wherein the phase matched glass-to-liquid crystal anti-reflective coating comprises:

a tin-indium oxide transparent conductor layer disposed on the first side of the spacer plate; and

a alignment layer disposed over the tin-indium oxide transparent conductor layer.

16. The liquid crystal Fabry-Perot etalon of claim **13**, wherein the etalon has an overall transmission characteristic of about 0.95 or greater.

17. The liquid crystal Fabry-Perot etalon of claim **13**, wherein the phase matched glass-to-liquid crystal reflective coating comprises:

a tin-indium oxide transparent conductor layer;

multiple alternating layers of MgF_2 and ZrO_2; and

a nylon layer.

18. The liquid crystal Fabry-Perot etalon of claim **13**, wherein the phase matched glass-to-liquid crystal anti-reflective coating comprises:

a tin-indium oxide transparent conductor layer;

multiple alternating layers of TiO_2 and SiO_2; and

a nylon layer.

19. An optical wavelength division multiplex device comprising:

two or more liquid crystal Fabry-Perot etalons connected together in a series combination, wherein each of the liquid crystal Fabry-Perot etalons comprises:

a first substrate coated on a first side with a first reflector layer;

a first transparent conductor layer disposed over the first reflector layer on the first side of the first substrate;

an alignment layer disposed over the first transparent conductor layer on the first side of the first substrate;

a spacer plate coated on a first side with a second transparent conductor layer, the first side of the spacer plate facing the first side of the first substrate, the spacer plate having a second side opposite its first side;

plural spacers disposed between the first substrate and the spacer plate to define a predetermined gap between the first substrate and the spacer plate;

liquid crystal filled in between the first substrate and the spacer plate; and

a second substrate coated on a first side with a second reflector layer, the first side of the second substrate facing the second side of the spacer plate.

20. The optical wavelength division multiplex device according to claim **19**, wherein the second substrate of each of the liquid crystal Fabry-Perot etalons is spaced a predetermined distance apart from the spacer plate.

21. The optical wavelength division multiplex device according to claim **19**, wherein the second substrate of each of the liquid crystal Fabry-Perot etalons is disposed directly against the spacer plate.

22. An optical cross-connect comprising:

a pair of optical wavelength division multiplex devices connected via an optical network, wherein each of the optical wavelength division multiplex devices comprises:

two or more liquid crystal Fabry-Perot etalons in series combination, wherein each of the liquid crystal Fabry-Perot etalons comprises:

a first substrate coated on a first side with a first reflector layer;

a first transparent conductor layer disposed over the first reflector layer on the first side of the first substrate;

an alignment layer disposed over the first transparent conductor layer on the first side of the first substrate;

a spacer plate coated on a first side with a second transparent conductor layer, the first side of the spacer plate facing the first side of the first substrate, the spacer plate having a second side opposite its first side;

plural spacers disposed between the first substrate and the spacer plate to define a predetermined gap between the first substrate and the spacer plate;

liquid crystal filled in between the first substrate and the spacer plate; and

a second substrate coated on a first side with a second reflector layer, the first side of the second substrate facing the second side of the spacer plate.

23. The optical cross connect according to claim **22**, wherein the second substrate of each of the liquid crystal Fabry-Perot etalons is spaced a predetermined distance apart from the spacer plate.

24. The optical cross connect according to claim **22**, wherein the second substrate of each of the liquid crystal Fabry-Perot etalons is disposed directly against the spacer plate.

25. A liquid crystal Fabry-Perot etalon comprising:

a first substrate formed of glass;

a spacer plate formed of glass;

liquid crystal disposed between the first substrate and the spacer plate;

a second substrate formed of glass, spaced apart from the spacer plate by an air gap;

a phase matched glass- liquid crystal interface reflective coating disposed on a first side of the first substrate, the first side of the first substrate facing the liquid crystal, wherein the phase matched glass- liquid crystal interface reflective coating comprises:

a reflector layer disposed on the first side of the first substrate;

a first tin-indium oxide transparent conductor layer disposed over the reflector layer; and

a first alignment layer disposed over the tin-indium oxide transparent conductor layer;

a first phase matched glass-air interface anti-reflective coating disposed on a second side of the first substrate opposite its first side;

a phase matched glass- liquid crystal interface anti-reflective coating disposed on a first side of the spacer plate, the first side of the spacer plate facing the liquid crystal, wherein the phase matched glass- liquid interface crystal anti-reflective coating comprises:

a second tin-indium oxide transparent conductor layer disposed on the first side of the spacer plate; and

a second alignment layer disposed over the tin-indium oxide transparent conductor layer;

a second phase matched glass-air interface anti-reflective coating disposed on a second side of the spacer plate opposite its first side;

a phase matched glass-air interface reflective coating disposed on a first side of the second substrate, the first side of the second substrate facing a second side of the spacer plate; and

a third phase matched glass-air interface anti-reflective coating disposed on a second side of the second substrate opposite its first side;

wherein the first and the second transparent tin-indium oxide conductor layers are each etched in a grid pattern so as to form multiple independent etalons.